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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,985	11/21/2003	Mark S. Olsson	0009-053	4360

22298 7590 11/03/2004

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EXAMINER	
HAN, JASON	

ART UNIT	PAPER NUMBER
2875	

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/718,985	OLSSON ET AL.	
	Examiner	Art Unit	
	Jason M Han	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-90* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-90* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 February 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because in Figure 3 the "Temperature Sense and Leak Detect PCB" should be referenced as [(56): Page 6, Paragraph 31]. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922).

Isenga teaches a transom light having a housing with hollow interior [Figure 3: (27)]; a thru-hull fitting assembly [Figure 3: (81)] connected to a forward end of the lamp housing [Figure 3: (33)] for mounting the forward end of the lamp housing in a hole in the hull of a vessel in a water-tight fashion [see Abstract]; a lamp [Figure 3: (17)]; means for mounting the lamp in the interior of the lamp housing [Figure 3: (21, 23, 25)]; a window [Figure 3: (43)] extending across the forward end of the lamp housing; and a means for providing a water-tight seal between the window and the forward end of the lamp housing to prevent water from entering the interior of the lamp housing [Figure 3: (65)].

Isenga does not specifically teach the window being made of sapphire.

Schuda teaches a window being made of sapphire [Figure 1: (30); Column 2, Line 66; Claim 4].

It would have been obvious to modify the transom light of Isenga to incorporate the sapphire window of Schuda in order to provide a resilient and thermally conductive window in protecting the light. It is also obvious that sapphire windows are used in high intensity discharge lamp applications, whereby sapphire's high thermal conductivity provides efficient heat dissipation.

3. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922) as applied to Claim 1 above.

Isenga teaches a transom light as cited above.

Isenga does not teach the light having a reflector mounted in the interior of the lamp housing and surrounding the lamp.

Schuda teaches an integral reflector flashlamp whereby a reflector [Figure 1: (11)] is disposed within a housing [Figure 1: (14)] and surrounds the light source [Figure 1: (45, 51)]. Schuda further teaches the reflector being designed in parabolic, elliptical or aspherical in shape to provide a particularly desired collimation of light [Column 2, Lines 53-55].

It would have been obvious to modify the transom light of Isenga to incorporate the integral reflector of Schuda in order to collimate and focus the beam of light.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922) as applied to Claim 1 above, and further in view of Poggi (U.S. Patent 5800041).

Isenga in view of Schuda teach a thru-hull mounted light as cited above.

Neither Isenga nor Schuda specifically teach the light having an end cap and means for securing the end cap to a rearward end of the lamp housing in a water-tight fashion.

Poggi discloses an underwater light fitting wherein an end cap [Figure 2: (31)] is fitted over a rearward end of the lamp housing [Figures 2-3: (34)]. Poggi further

teaches, "The cap 31 has an internally threaded portion 36 which engages an externally threaded portion 36 which engages an externally threaded portion 37 of the shaped portion 34 of the casing 12. The cap 31 thus screws onto the shaped portion 34, securing the flange 17 of the connection assembly 16 to the external end of the shaped portion 34 of the casing 12. An "O" ring 35 is provided between the flange 17 and the external end of the shaped portion 34, in order to prevent ingress of water. In use, therefore, the housing 1 is water-tight [Column 5, Lines 2-13]."

It would have been obvious to modify the transom light of Isenga with the sapphire window of Schuda to further incorporate the end cap of Poggi to ensure an additional safety measure in the case where water somehow penetrates into the lamp.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922) as applied to Claim 1 above, and further in view of Volk et al. (U.S. Patent 6538394).

Isenga in view of Schuda teach a thru-hull light as cited above. Isenga further teaches the transom light having an electrical circuit connected to the light [Figures 2-4: (19); Column 2, Lines 42-52].

Neither Isenga nor Schuda specifically teach an electrical circuit having a means for shutting off a source of power to the lamp upon the detection of a predetermined excessive heat condition.

Volk teaches, "The circuit of FIG. 1 further includes a thermal shutdown circuit of a type well known in the prior art, which will shutdown the circuit to turn off transistors

Q2 through Q4 in the event the circuit is subject to an excessive temperature, internally generated or otherwise [Column 2, Lines 59-64]."

It would have been obvious to modify the transom light of Isenga with the sapphire window of Schuda to further incorporate the thermal shutdown circuit of Volk to ensure an additional safety measure for the light, as well as the passengers of the vessel.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922) as applied to Claim 1 above, and further in view of Davenport et al. (U.S. Patent 6545428).

Isenga in view of Schuda teach a thru-hull light as cited above. Isenga further teaches the transom light having an electrical circuit connected to the light [Figures 2-4: (19); Column 2, Lines 42-52].

Neither Isenga nor Schuda specifically teach an electrical circuit having a means for shutting off a source of power to the lamp upon the detection of a leakage of water into the lamp housing.

Davenport teaches, "FIG. 3 shows a schematic construction of a typical water-sensitive circuit 33. In that figure, block 42 represents a water sensor connected btween nodes 18 and 22 so as to be serially connected to ballast 20 (FIG. 1). It cooperates with a variable-conductance device 44 to substantially increase the conductance of device 44 in the presence of leaking water. Water sensor 42 could be an electronic circuit (not shown) for sensing water or humidity. Variable-conductance device 44 could be a soft switch, i.e., a switch that does not necessarily turn fully off or

fully on, such as a resistive or inductive switch, or it could be a hard switch [Column 4, Lines 9-19]."

It would have been obvious to modify the transom light of Isenga with the sapphire window of Schuda to further incorporate the water-sensitive circuit of Davenport to ensure an additional safety measure for the light, as well as the passengers of the vessel.

7. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922) as applied to Claim 1 above, and further in view of Shackle (U.S. Patent 6791275).

Isenga in view of Schuda teach a thru-hull light as cited above. Isenga further teaches the transom light having an electrical circuit connected to the light [Figures 2-4: (19); Column 2, Lines 42-52].

Neither Isenga nor Schuda specifically teach an electrical circuit connected to the lamp and including a ballast and means for shutting off a source of power to the ballast in the event of a fault in the lamp.

Shackle teaches a lamp with an electrical circuit connected to a lamp and ballast, and means for shutting off a source of power to the ballast in the event of a fault in the lamp. Shackle further teaches the electrical circuit providing a power indicator status [Abstract], as well as a means for indicating a fault status [Column 3, Lines 22-26].

It would have been obvious to modify the transom light of Isenga with the sapphire window of Schuda to further incorporate the fault-status circuit of Shackle to ensure an additional safety measure for the light, as well as the passengers of the

vessel. In addition, an indicator for power and/or fault provides a user an operating status for the lamp and an immediate warning to a malfunction.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922) as applied to Claim 1 above, and further in view of Rahm et al. (U.S. Patent 6636003).

Isenga in view of Schuda teach a thru-hull light as cited above.

Neither Isenga nor Schuda specifically teach the lamp having a color temperature of at least five thousand K.

Rahm teaches the use of a lamp having a color temperature of at least five thousand K [Column 2, Lines 20-23].

It is obvious that one could modify the transom light of Isenga with the sapphire window of Schuda to further incorporate the five thousand K lamp of Rahm to ensure a desired quality of light. The examiner considers the limitation a matter of design preference, and it is commonly held in the art and obvious that the color temperature of the lamp further provides a desired hue [e.g., 5000K for a illumination in the blue spectrum].

9. Claims 11, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922).

With regards to Claim 11, Isenga teaches a transom light having a housing with hollow interior [Figure 3: (27)]; a thru-hull fitting assembly [Figure 3: (81)] connected to a forward end of the lamp housing [Figure 3: (33)] for mounting the forward end of the

lamp housing in a hole in the hull of a vessel in a water-tight fashion [see Abstract]; a lamp [Figure 3: (17)]; means for mounting the lamp in the interior of the lamp housing [Figure 3: (21, 23, 25)]; a window [Figure 3: (43)] extending across the forward end of the lamp housing; and a means for providing a water-tight seal between the window and the forward end of the lamp housing to prevent water from entering the interior of the lamp housing [Figure 3: (65)].

Isenga does not teach the lamp having a reflector mounted in the interior of the lamp housing and having an elliptical section surrounding the lamp.

Schuda teaches an integral reflector flashlamp whereby a reflector [Figure 1: (11)] is disposed within a housing [Figure 1: (14)] and surrounds the light source [Figure 1: (45, 51)]. Schuda further teaches the reflector being designed in parabolic, elliptical or aspherical in shape to provide a particularly desired collimation of light [Column 2, Lines 53-55].

It would have been obvious to modify the transom light of Isenga to incorporate the integral reflector of Schuda in order to collimate and focus the beam of light.

10. With regards to Claim 13, Isenga teaches a means for mounting the lamp including a socket [Figures 2-4: (15); Column 2, Lines 42-45].

11. With regards to Claim 14, Schuda teaches the reflector, as cited above, being designed in parabolic, elliptical or aspherical in shape to provide a particularly desired collimation of light [Column 2, Lines 53-55]. The examiner considers the current limitation a matter of optics and design preference, whereby the reflector is designed to provide a desired illumination effect. It should further be noted that Schuda portrays the

parabolic section having an outer diameter substantially equal to the diameter of the window [Figure 1].

12. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922) as applied to Claim 11 above.

Isenga teaches a transom light having a window as cited above.

Isenga does not specifically teach the window being made of sapphire.

Schuda teaches a window being made of sapphire [Figure 1: (30); Column 2, Line 66; Claim 4].

It would have been obvious to modify the transom light of Isenga to incorporate the sapphire window of Schuda in order to provide a resilient and thermally conductive window in protecting the light. It is also obvious that sapphire windows are used in high intensity discharge lamp applications, whereby sapphire's high thermal conductivity provides efficient heat dissipation.

13. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922) as applied to Claim 11 above, and further in view of Poggi (U.S. Patent 5800041).

Isenga in view of Schuda teach a thru-hull mounted light as cited above.

Neither Isenga nor Schuda specifically teach the light having an end cap and means for securing the end cap to a rearward end of the lamp housing in a water-tight fashion.

Poggi discloses an underwater light fitting wherein an end cap [Figure 2: (31)] is fitted over a rearward end of the lamp housing [Figures 2-3: (34)]. Poggi further teaches, "The cap 31 has an internally threaded portion 36 which engages an externally threaded portion 36 which engages an externally threaded portion 37 of the shaped portion 34 of the casing 12. The cap 31 thus screws onto the shaped portion 34, securing the flange 17 of the connection assembly 16 to the external end of the shaped portion 34 of the casing 12. An "O" ring 35 is provided between the flange 17 and the external end of the shaped portion 34, in order to prevent ingress of water. In use, therefore, the housing 1 is water-tight [Column 5, Lines 2-13]."

It would have been obvious to modify the transom light of Isenga with the integral reflector of Schuda to further incorporate the end cap of Poggi to ensure an additional safety measure in the case where water somehow penetrates into the lamp.

14. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922) as applied to Claim 11 above, and further in view of Volk et al. (U.S. Patent 6538394).

Isenga in view of Schuda teach a thru-hull light as cited above. Isenga further teaches the transom light having an electrical circuit connected to the light [Figures 2-4: (19); Column 2, Lines 42-52].

Neither Isenga nor Schuda specifically teach an electrical circuit having a means for shutting off a source of power to the lamp upon the detection of a predetermined excessive heat condition.

Volk teaches, "The circuit of FIG. 1 further includes a thermal shutdown circuit of a type well known in the prior art, which will shutdown the circuit to turn off transistors Q2 through Q4 in the event the circuit is subject to an excessive temperature, internally generated or otherwise [Column 2, Lines 59-64]."

It would have been obvious to modify the transom light of Isenga with the integral reflector of Schuda to further incorporate the thermal shutdown circuit of Volk to ensure an additional safety measure for the light, as well as the passengers of the vessel.

15. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922) as applied to Claim 11 above, and further in view of Davenport et al. (U.S. Patent 6545428).

Isenga in view of Schuda teach a thru-hull light as cited above. Isenga further teaches the transom light having an electrical circuit connected to the light [Figures 2-4: (19); Column 2, Lines 42-52].

Neither Isenga nor Schuda specifically teach an electrical circuit having a means for shutting off a source of power to the lamp upon the detection of a leakage of water into the lamp housing.

Davenport teaches, "FIG. 3 shows a schematic construction of a typical water-sensitive circuit 33. In that figure, block 42 represents a water sensor connected btween nodes 18 and 22 so as to be serially connected to ballast 20 (FIG. 1). It cooperates with a variable-conductance device 44 to substantially increase the conductance of device 44 in the presence of leaking water. Water sensor 42 could be an electronic circuit (not shown) for sensing water or humidity. Variable-conductance

device 44 could be a soft switch, i.e., a switch that does not necessarily turn fully off or fully on, such as a resistive or inductive switch, or it could be a hard switch [Column 4, Lines 9-19]."

It would have been obvious to modify the transom light of Isenga with the integral reflector of Schuda to further incorporate the water-sensitive circuit of Davenport to ensure an additional safety measure for the light, as well as the passengers of the vessel.

16. Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922) as applied to Claim 11 above, and further in view of Shackle (U.S. Patent 6791275).

Isenga in view of Schuda teach a thru-hull light as cited above. Isenga further teaches the transom light having an electrical circuit connected to the light [Figures 2-4: (19); Column 2, Lines 42-52].

Neither Isenga nor Schuda specifically teach an electrical circuit connected to the lamp and including a ballast and means for shutting off a source of power to the ballast in the event of a fault in the lamp.

Shackle teaches a lamp with an electrical circuit connected to a lamp and ballast, and means for shutting off a source of power to the ballast in the event of a fault in the lamp. Shackle further teaches the electrical circuit providing a power indicator status [Abstract], as well as a means for indicating a fault status [Column 3, Lines 22-26].

It would have been obvious to modify the transom light of Isenga with the integral reflector of Schuda to further incorporate the fault-status circuit of Shackle to ensure an

additional safety measure for the light, as well as the passengers of the vessel. In addition, an indicator for power and/or fault provides a user an operating status for the lamp and an immediate warning to a malfunction.

17. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922) as applied to Claim 11 above, and further in view of Rahm et al. (U.S. Patent 6636003).

Isenga in view of Schuda teach a thru-hull light as cited above.

Neither Isenga nor Schuda specifically teach the lamp having a color temperature of at least five thousand K.

Rahm teaches the use of a lamp having a color temperature of at least five thousand K [Column 2, Lines 20-23].

It is obvious that one could modify the transom light of Isenga with the integral reflector of Schuda to further incorporate the five thousand K lamp of Rahm to ensure a desired quality of light. The examiner considers the limitation a matter of design preference, and it is commonly held in the art and obvious that the color temperature of the lamp further provides a desired hue [e.g., 5000K for a illumination in the blue spectrum].

18. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Volk et al. (U.S. Patent 6538394).

Isenga teaches a transom light having a housing with hollow interior [Figure 3: (27)]; a thru-hull fitting assembly [Figure 3: (81)] connected to a forward end of the lamp housing [Figure 3: (33)] for mounting the forward end of the lamp housing in a hole in

the hull of a vessel in a water-tight fashion [see Abstract]; a lamp [Figure 3: (17)]; means for mounting the lamp in the interior of the lamp housing [Figure 3: (21, 23, 25)]; a window [Figure 3: (43)] extending across the forward end of the lamp housing; and a means for providing a water-tight seal between the window and the forward end of the lamp housing to prevent water from entering the interior of the lamp housing [Figure 3: (65)]. Isenga further teaches the transom light having an electrical circuit connected to the light [Figures 2-4: (19); Column 2, Lines 42-52].

Isenga does not specifically teach an electrical circuit having a means for shutting off a source of power to the lamp upon the detection of a predetermined excessive heat condition.

Volk teaches, "The circuit of FIG. 1 further includes a thermal shutdown circuit of a type well known in the prior art, which will shutdown the circuit to turn off transistors Q2 through Q4 in the event the circuit is subject to an excessive temperature, internally generated or otherwise [Column 2, Lines 59-64]."

It would have been obvious to modify the transom light of Isenga with the integral reflector of Schuda to further incorporate the thermal shutdown circuit of Volk to ensure an additional safety measure for the light, as well as the passengers of the vessel.

19. Claims 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Volk et al. (U.S. Patent 6538394) as applied to Claim 21 above, and further in view of Schuda et al. (U.S. Patent 4940922).

Isenga in view of Volk teach a transom light as cited above.

Neither Isenga nor Volk teach the light having a reflector mounted in the interior of the lamp housing and surrounding the lamp.

Schuda teaches an integral reflector flashlamp whereby a reflector [Figure 1: (11)] is disposed within a housing [Figure 1: (14)] and surrounds the light source [Figure 1: (45, 51)]. Schuda further teaches the reflector being designed in parabolic, elliptical or aspherical in shape to provide a particularly desired collimation of light [Column 2, Lines 53-55].

It would have been obvious to modify the transom light of Isenga with the thermal shutdown circuit of Volk to further incorporate the integral reflector of Schuda in order to collimate and focus the beam of light.

20. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Volk et al. (U.S. Patent 6538394) as applied to Claim 21 above, and further in view of Poggi (U.S. Patent 5800041).

Isenga in view of Volk teach a thru-hull mounted light as cited above.

Neither Isenga nor Volk specifically teach the light having an end cap and means for securing the end cap to a rearward end of the lamp housing in a water-tight fashion.

Poggi discloses an underwater light fitting wherein an end cap [Figure 2: (31)] is fitted over a rearward end of the lamp housing [Figures 2-3: (34)]. Poggi further teaches, "The cap 31 has an internally threaded portion 36 which engages an externally threaded portion 36 which engages an externally threaded portion 37 of the shaped portion 34 of the casing 12. The cap 31 thus screws onto the shaped portion 34, securing the flange 17 of the connection assembly 16 to the external end of the shaped

portion 34 of the casing 12. An "O" ring 35 is provided between the flange 17 and the external end of the shaped portion 34, in order to prevent ingress of water. In use, therefore, the housing 1 is water-tight [Column 5, Lines 2-13]."

It would have been obvious to modify the transom light of Isenga with the thermal shutdown circuit of Volk to further incorporate the end cap of Poggi to ensure an additional safety measure in the case where water somehow penetrates into the lamp.

21. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Volk et al. (U.S. Patent 6538394) as applied to Claim 21 above, and further in view of Schuda et al. (U.S. Patent 4940922).

Isenga in view of Volk teach a transom light having a window as cited above.

Neither Isenga nor Volk specifically teach the window being made of sapphire.

Schuda teaches a window being made of sapphire [Figure 1: (30); Column 2, Line 66; Claim 4].

It would have been obvious to modify the transom light of Isenga with the thermal shutdown circuit of Volk to further incorporate the sapphire window of Schuda in order to provide a resilient and thermally conductive window in protecting the light. It is also obvious that sapphire windows are used in high intensity discharge lamp applications, whereby sapphire's high thermal conductivity provides efficient heat dissipation.

22. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Volk et al. (U.S. Patent 6538394) as applied to Claim 21 above, and further in view of Davenport et al. (U.S. Patent 6545428).

Isenga in view of Volk teach a thru-hull light as cited above.

Neither Isenga nor Volk specifically teach an electrical circuit having a means for shutting off a source of power to the lamp upon the detection of a leakage of water into the lamp housing.

Davenport teaches, "FIG. 3 shows a schematic construction of a typical water-sensitive circuit 33. In that figure, block 42 represents a water sensor connected between nodes 18 and 22 so as to be serially connected to ballast 20 (FIG. 1). It cooperates with a variable-conductance device 44 to substantially increase the conductance of device 44 in the presence of leaking water. Water sensor 42 could be an electronic circuit (not shown) for sensing water or humidity. Variable-conductance device 44 could be a soft switch, i.e., a switch that does not necessarily turn fully off or fully on, such as a resistive or inductive switch, or it could be a hard switch [Column 4, Lines 9-19]."

It would have been obvious to modify the transom light of Isenga with the thermal shutdown circuit of Volk to further incorporate the water-sensitive circuit of Davenport to ensure an additional safety measure for the light, as well as the passengers of the vessel.

23. Claims 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Volk et al. (U.S. Patent 6538394) as applied to Claim 21 above, and further in view of Shackle (U.S. Patent 6791275).

Isenga in view of Volk teach a thru-hull light as cited above.

Neither Isenga nor Volk specifically teach an electrical circuit connected to the lamp and including a ballast and means for shutting off a source of power to the ballast in the event of a fault in the lamp.

Shackle teaches a lamp with an electrical circuit connected to a lamp and ballast, and means for shutting off a source of power to the ballast in the event of a fault in the lamp. Shackle further teaches the electrical circuit providing a power indicator status [Abstract], as well as a means for indicating a fault status [Column 3, Lines 22-26].

It would have been obvious to modify the transom light of Isenga with the thermal shutdown circuit of Volk to further incorporate the fault-status circuit of Shackle to ensure an additional safety measure for the light, as well as the passengers of the vessel. In addition, an indicator for power and/or fault provides a user an operating status for the lamp and an immediate warning to a malfunction.

24. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Volk et al. (U.S. Patent 6538394) as applied to Claim 21 above, and further in view of Rahm et al. (U.S. Patent 6636003).

Isenga in view of Volk teach a thru-hull light as cited above.

Neither Isenga nor Volk specifically teach the lamp having a color temperature of at least five thousand K.

Rahm teaches the use of a lamp having a color temperature of at least five thousand K [Column 2, Lines 20-23].

It is obvious that one could modify the transom light of Isenga with the thermal shutdown circuit of Volk to further incorporate the five thousand K lamp of Rahm to

ensure a desired quality of light. The examiner considers the limitation a matter of design preference, and it is commonly held in the art and obvious that the color temperature of the lamp further provides a desired hue [e.g., 5000K for a illumination in the blue spectrum].

25. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Davenport et al. (U.S. Patent 6545428).

Isenga teaches a transom light having a housing with hollow interior [Figure 3: (27)]; a thru-hull fitting assembly [Figure 3: (81)] connected to a forward end of the lamp housing [Figure 3: (33)] for mounting the forward end of the lamp housing in a hole in the hull of a vessel in a water-tight fashion [see Abstract]; a lamp [Figure 3: (17)]; means for mounting the lamp in the interior of the lamp housing [Figure 3: (21, 23, 25)]; a window [Figure 3: (43)] extending across the forward end of the lamp housing; and a means for providing a water-tight seal between the window and the forward end of the lamp housing to prevent water from entering the interior of the lamp housing [Figure 3: (65)]. Isenga further teaches the transom light having an electrical circuit connected to the light [Figures 2-4: (19); Column 2, Lines 42-52].

Isenga does not specifically teach an electrical circuit having a means for shutting off a source of power to the lamp upon the detection of a leakage of water into the lamp housing.

Davenport teaches, "FIG. 3 shows a schematic construction of a typical water-sensitive circuit 33. In that figure, block 42 represents a water sensor connected btween nodes 18 and 22 so as to be serially connected to ballast 20 (FIG. 1). It

cooperates with a variable-conductance device 44 to substantially increase the conductance of device 44 in the presence of leaking water. Water sensor 42 could be an electronic circuit (not shown) for sensing water or humidity. Variable-conductance device 44 could be a soft switch, i.e., a switch that does not necessarily turn fully off or fully on, such as a resistive or inductive switch, or it could be a hard switch [Column 4, Lines 9-19]."

It would have been obvious to modify the transom light of Isenga to incorporate the water-sensitive circuit of Davenport to ensure an additional safety measure for the light, as well as the passengers of the vessel.

26. Claims 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Davenport et al. (U.S. Patent 6545428) as applied to Claim 31 above, and further in view of Schuda et al. (U.S. Patent 4940922).

Isenga in view of Davenport teach a transom light as cited above.

Neither Isenga nor Davenport teach the light having a reflector mounted in the interior of the lamp housing and surrounding the lamp.

Schuda teaches an integral reflector flashlamp whereby a reflector [Figure 1: (11)] is disposed within a housing [Figure 1: (14)] and surrounds the light source [Figure 1: (45, 51)]. Schuda further teaches the reflector being designed in parabolic, elliptical or aspherical in shape to provide a particularly desired collimation of light [Column 2, Lines 53-55].

It would have been obvious to modify the transom light of Isenga with the water-sensitive circuit of Davenport to further incorporate the integral reflector of Schuda in order to collimate and focus the beam of light.

27. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Davenport et al. (U.S. Patent 6545428) as applied to Claim 31 above, and further in view of Poggi (U.S. Patent 5800041).

Isenga in view of Davenport teach a thru-hull mounted light as cited above.

Neither Isenga nor Davenport specifically teach the light having an end cap and means for securing the end cap to a rearward end of the lamp housing in a water-tight fashion.

Poggi discloses an underwater light fitting wherein an end cap [Figure 2: (31)] is fitted over a rearward end of the lamp housing [Figures 2-3: (34)]. Poggi further teaches, "The cap 31 has an internally threaded portion 36 which engages an externally threaded portion 36 which engages an externally threaded portion 37 of the shaped portion 34 of the casing 12. The cap 31 thus screws onto the shaped portion 34, securing the flange 17 of the connection assembly 16 to the external end of the shaped portion 34 of the casing 12. An "O" ring 35 is provided between the flange 17 and the external end of the shaped portion 34, in order to prevent ingress of water. In use, therefore, the housing 1 is water-tight [Column 5, Lines 2-13]."

It would have been obvious to modify the transom light of Isenga with the water-sensitive circuit of Davenport to further incorporate the end cap of Poggi to ensure an additional safety measure in the case where water somehow penetrates into the lamp.

28. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Davenport et al. (U.S. Patent 6545428) as applied to Claim 31 above, and further in view of Schuda et al. (U.S. Patent 4940922).

Isenga in view of Davenport teach a transom light having a window as cited above.

Neither Isenga nor Davenport specifically teach the window being made of sapphire.

Schuda teaches a window being made of sapphire [Figure 1: (30); Column 2, Line 66; Claim 4].

It would have been obvious to modify the transom light of Isenga with the water-sensitive circuit of Davenport to further incorporate the sapphire window of Schuda in order to provide a resilient and thermally conductive window in protecting the light. It is also obvious that sapphire windows are used in high intensity discharge lamp applications, whereby sapphire's high thermal conductivity provides efficient heat dissipation.

29. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Davenport et al. (U.S. Patent 6545428) as applied to Claim 31 above, and further in view of Volk et al. (U.S. Patent 6538394).

Isenga in view of Davenport teach a thru-hull light as cited above.

Neither Isenga nor Davenport specifically teach an electrical circuit having a means for shutting off a source of power to the lamp upon the detection of a predetermined excessive heat condition.

Volk teaches, "The circuit of FIG. 1 further includes a thermal shutdown circuit of a type well known in the prior art, which will shutdown the circuit to turn off transistors Q2 through Q4 in the event the circuit is subject to an excessive temperature, internally generated or otherwise [Column 2, Lines 59-64]."

It would have been obvious to modify the transom light of Isenga with the water-sensitive circuit of Davenport to further incorporate the thermal shutdown circuit of Volk to ensure an additional safety measure for the light, as well as the passengers of the vessel.

30. Claims 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Davenport et al. (U.S. Patent 6545428) as applied to Claim 31 above, and further in view of Shackle (U.S. Patent 6791275).

Isenga in view of Davenport teach a thru-hull light as cited above.

Neither Isenga nor Davenport specifically teach an electrical circuit connected to the lamp and including a ballast and means for shutting off a source of power to the ballast in the event of a fault in the lamp.

Shackle teaches a lamp with an electrical circuit connected to a lamp and ballast, and means for shutting off a source of power to the ballast in the event of a fault in the lamp. Shackle further teaches the electrical circuit providing a power indicator status [Abstract], as well as a means for indicating a fault status [Column 3, Lines 22-26].

It would have been obvious to modify the transom light of Isenga with the water-sensitive circuit of Davenport to further incorporate the fault-status circuit of Shackle to ensure an additional safety measure for the light, as well as the passengers of the

vessel. In addition, an indicator for power and/or fault provides a user an operating status for the lamp and an immediate warning to a malfunction.

31. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Davenport et al. (U.S. Patent 6545428) as applied to Claim 31 above, and further in view of Rahm et al. (U.S. Patent 6636003).

Isenga in view of Davenport teach a thru-hull light as cited above.

Neither Isenga nor Davenport specifically teach the lamp having a color temperature of at least five thousand K.

Rahm teaches the use of a lamp having a color temperature of at least five thousand K [Column 2, Lines 20-23].

It is obvious that one could modify the transom light of Isenga with the water-sensitive circuit of Davenport to further incorporate the five thousand K lamp of Rahm to ensure a desired quality of light. The examiner considers the limitation a matter of design preference, and it is commonly held in the art and obvious that the color temperature of the lamp further provides a desired hue [e.g., 5000K for a illumination in the blue spectrum].

32. Claims 41 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Shackle (U.S. Patent 6791275).

Isenga teaches a transom light having a housing with hollow interior [Figure 3: (27)]; a thru-hull fitting assembly [Figure 3: (81)] connected to a forward end of the lamp housing [Figure 3: (33)] for mounting the forward end of the lamp housing in a hole in the hull of a vessel in a water-tight fashion [see Abstract]; a lamp [Figure 3: (17)]; means

for mounting the lamp in the interior of the lamp housing [Figure 3: (21, 23, 25)]; a window [Figure 3: (43)] extending across the forward end of the lamp housing; and a means for providing a water-tight seal between the window and the forward end of the lamp housing to prevent water from entering the interior of the lamp housing [Figure 3: (65)]. Isenga further teaches the transom light having an electrical circuit connected to the light [Figures 2-4: (19); Column 2, Lines 42-52].

Isenga does not specifically teach an electrical circuit connected to the lamp and including a ballast and means for shutting off a source of power to the ballast in the event of a fault in the lamp.

Shackle teaches a lamp with an electrical circuit connected to a lamp and ballast, and means for shutting off a source of power to the ballast in the event of a fault in the lamp. Shackle further teaches the electrical circuit providing a power indicator status [Abstract], as well as a means for indicating a fault status [Column 3, Lines 22-26].

It would have been obvious to modify the transom light of Isenga to incorporate the fault-status circuit of Shackle to ensure an additional safety measure for the light, as well as the passengers of the vessel. In addition, an indicator for power and/or fault provides a user an operating status for the lamp and an immediate warning to a malfunction.

33. Claims 42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Shackle (U.S. Patent 6791275) as applied to Claim 41 above, and further in view of Schuda et al. (U.S. Patent 4940922).

Isenga in view of Shackle teach a transom light as cited above.

Neither Isenga nor Shackle teach the light having a reflector mounted in the interior of the lamp housing and surrounding the lamp.

Schuda teaches an integral reflector flashlamp whereby a reflector [Figure 1: (11)] is disposed within a housing [Figure 1: (14)] and surrounds the light source [Figure 1: (45, 51)]. Schuda further teaches the reflector being designed in parabolic, elliptical or aspherical in shape to provide a particularly desired collimation of light [Column 2, Lines 53-55].

It would have been obvious to modify the transom light of Isenga with the fault-status circuit of Shackle to further incorporate the integral reflector of Schuda in order to collimate and focus the beam of light.

34. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Shackle (U.S. Patent 6791275) as applied to Claim 41 above, and further in view of Poggi (U.S. Patent 5800041).

Isenga in view of Shackle teach a thru-hull mounted light as cited above.

Neither Isenga nor Shackle specifically teach the light having an end cap and means for securing the end cap to a rearward end of the lamp housing in a water-tight fashion.

Poggi discloses an underwater light fitting wherein an end cap [Figure 2: (31)] is fitted over a rearward end of the lamp housing [Figures 2-3: (34)]. Poggi further teaches, "The cap 31 has an internally threaded portion 36 which engages an externally threaded portion 36 which engages an externally threaded portion 37 of the shaped portion 34 of the casing 12. The cap 31 thus screws onto the shaped portion 34,

securing the flange 17 of the connection assembly 16 to the external end of the shaped portion 34 of the casing 12. An "O" ring 35 is provided between the flange 17 and the external end of the shaped portion 34, in order to prevent ingress of water. In use, therefore, the housing 1 is water-tight [Column 5, Lines 2-13]."

It would have been obvious to modify the transom light of Isenga with the fault-status circuit of Shackle to further incorporate the end cap of Poggi to ensure an additional safety measure in the case where water somehow penetrates into the lamp.

35. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Shackle (U.S. Patent 6791275) as applied to Claim 41 above, and further in view of Schuda et al. (U.S. Patent 4940922).

Isenga in view of Shackle teach a transom light having a window as cited above.

Neither Isenga nor Shackle specifically teach the window being made of sapphire.

Schuda teaches a window being made of sapphire [Figure 1: (30); Column 2, Line 66; Claim 4].

It would have been obvious to modify the transom light of Isenga with the fault-status circuit of Shackle to further incorporate the sapphire window of Schuda in order to provide a resilient and thermally conductive window in protecting the light. It is also obvious that sapphire windows are used in high intensity discharge lamp applications, whereby sapphire's high thermal conductivity provides efficient heat dissipation.

36. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Shackle (U.S. Patent 6791275) as applied to Claim 41 above, and further in view of Volk et al. (U.S. Patent 6538394).

Isenga in view of Shackle teach a thru-hull light as cited above.

Neither Isenga nor Shackle specifically teach an electrical circuit having a means for shutting off a source of power to the lamp upon the detection of a predetermined excessive heat condition.

Volk teaches, "The circuit of FIG. 1 further includes a thermal shutdown circuit of a type well known in the prior art, which will shutdown the circuit to turn off transistors Q2 through Q4 in the event the circuit is subject to an excessive temperature, internally generated or otherwise [Column 2, Lines 59-64]."

It would have been obvious to modify the transom light of Isenga with the fault-status circuit of Shackle to further incorporate the thermal shutdown circuit of Volk to ensure an additional safety measure for the light, as well as the passengers of the vessel.

37. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Shackle (U.S. Patent 6791275) as applied to Claim 41 above, and further in view of Davenport et al. (U.S. Patent 6545428).

Isenga in view of Shackle teach a thru-hull light as cited above.

Neither Isenga nor Shackle specifically teach an electrical circuit having a means for shutting off a source of power to the lamp upon the detection of a leakage of water into the lamp housing.

Davenport teaches, "FIG. 3 shows a schematic construction of a typical water-sensitive circuit 33. In that figure, block 42 represents a water sensor connected btween nodes 18 and 22 so as to be serially connected to ballast 20 (FIG. 1). It cooperates with a variable-conductance device 44 to substantially increase the conductance of device 44 in the presence of leaking water. Water sensor 42 could be an electronic circuit (not shown) for sensing water or humidity. Variable-conductance device 44 could be a soft switch, i.e., a switch that does not necessarily turn fully off or fully on, such as a resistive or inductive switch, or it could be a hard switch [Column 4, Lines 9-19]."

It would have been obvious to modify the transom light of Isenga with the fault-status circuit of Shackle to further incorporate the water-sensitive circuit of Davenport to ensure an additional safety measure for the light, as well as the passengers of the vessel.

38. Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Shackle (U.S. Patent 6791275) as applied to Claim 41 above, and further in view of Rahm et al. (U.S. Patent 6636003).

Isenga in view of Shackle teach a thru-hull light as cited above.

Neither Isenga nor Shackle specifically teach the lamp having a color temperature of at least five thousand K.

Rahm teaches the use of a lamp having a color temperature of at least five thousand K [Column 2, Lines 20-23].

It is obvious that one could modify the transom light of Isenga with the fault-status circuit of Shackle to further incorporate the five thousand K lamp of Rahm to ensure a desired quality of light. The examiner considers the limitation a matter of design preference, and it is commonly held in the art and obvious that the color temperature of the lamp further provides a desired hue [e.g., 5000K for a illumination in the blue spectrum].

39. Claims 51 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Shackle (U.S. Patent 6791275).

Isenga teaches a transom light having a housing with hollow interior [Figure 3: (27)]; a thru-hull fitting assembly [Figure 3: (81)] connected to a forward end of the lamp housing [Figure 3: (33)] for mounting the forward end of the lamp housing in a hole in the hull of a vessel in a water-tight fashion [see Abstract]; a lamp [Figure 3: (17)]; means for mounting the lamp in the interior of the lamp housing [Figure 3: (21, 23, 25)]; a window [Figure 3: (43)] extending across the forward end of the lamp housing; and a means for providing a water-tight seal between the window and the forward end of the lamp housing to prevent water from entering the interior of the lamp housing [Figure 3: (65)]. Isenga further teaches the transom light having an electrical circuit connected to the light [Figures 2-4: (19); Column 2, Lines 42-52].

Isenga does not specifically teach an electrical circuit connected to the lamp and including a ballast and means for shutting off a source of power to the ballast in the event of a fault in the lamp. Nor does Isenga teach an electrical circuit with means for indicating power status and/or fault status.

Shackle teaches a lamp with an electrical circuit connected to a lamp and ballast, and means for shutting off a source of power to the ballast in the event of a fault in the lamp. Shackle further teaches the electrical circuit providing a power indicator status [Abstract], as well as a means for indicating a fault status [Column 3, Lines 22-26].

It would have been obvious to modify the transom light of Isenga to incorporate the fault-cutoff and indicating status of Shackle to ensure an additional safety measure for the light, as well as the passengers of the vessel. In addition, an indicator for power and/or fault provides a user an operating status for the lamp and an immediate warning to a malfunction.

40. Claims 52-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Shackle (U.S. Patent 6791275) as applied to Claim 51 above, and further in view of Schuda et al. (U.S. Patent 4940922).

Isenga in view of Shackle teach a transom light as cited above.

Neither Isenga nor Shackle teach the light having a reflector mounted in the interior of the lamp housing and surrounding the lamp.

Schuda teaches an integral reflector flashlamp whereby a reflector [Figure 1: (11)] is disposed within a housing [Figure 1: (14)] and surrounds the light source [Figure 1: (45, 51)]. Schuda further teaches the reflector being designed in parabolic, elliptical or aspherical in shape to provide a particularly desired collimation of light [Column 2, Lines 53-55].

It would have been obvious to modify the transom light of Isenga with the fault-cutoff and indicating status of Shackle to further incorporate the integral reflector of Schuda in order to collimate and focus the beam of light.

41. Claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Shackle (U.S. Patent 6791275) as applied to Claim 51 above, and further in view of Poggi (U.S. Patent 5800041).

Isenga in view of Shackle teach a thru-hull mounted light as cited above.

Neither Isenga nor Shackle specifically teach the light having an end cap and means for securing the end cap to a rearward end of the lamp housing in a water-tight fashion.

Poggi discloses an underwater light fitting wherein an end cap [Figure 2: (31)] is fitted over a rearward end of the lamp housing [Figures 2-3: (34)]. Poggi further teaches, "The cap 31 has an internally threaded portion 36 which engages an externally threaded portion 36 which engages an externally threaded portion 37 of the shaped portion 34 of the casing 12. The cap 31 thus screws onto the shaped portion 34, securing the flange 17 of the connection assembly 16 to the external end of the shaped portion 34 of the casing 12. An "O" ring 35 is provided between the flange 17 and the external end of the shaped portion 34, in order to prevent ingress of water. In use, therefore, the housing 1 is water-tight [Column 5, Lines 2-13]."

It would have been obvious to modify the transom light of Isenga with the fault-cutoff and indicating status of Shackle to further incorporate the end cap of Poggi to

ensure an additional safety measure in the case where water somehow penetrates into the lamp.

42. Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Shackle (U.S. Patent 6791275) as applied to Claim 51 above, and further in view of Schuda et al. (U.S. Patent 4940922).

Isenga in view of Shackle teach a transom light having a window as cited above.

Neither Isenga nor Shackle specifically teach the window being made of sapphire.

Schuda teaches a window being made of sapphire [Figure 1: (30); Column 2, Line 66; Claim 4].

It would have been obvious to modify the transom light of Isenga with the fault-cutoff and indicating status of Shackle to further incorporate the sapphire window of Schuda in order to provide a resilient and thermally conductive window in protecting the light. It is also obvious that sapphire windows are used in high intensity discharge lamp applications, whereby sapphire's high thermal conductivity provides efficient heat dissipation.

43. Claim 57 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Shackle (U.S. Patent 6791275) as applied to Claim 51 above, and further in view of Volk et al. (U.S. Patent 6538394).

Isenga in view of Shackle teach a thru-hull light as cited above.

Neither Isenga nor Shackle specifically teach an electrical circuit having a means for shutting off a source of power to the lamp upon the detection of a predetermined excessive heat condition.

Volk teaches, "The circuit of FIG. 1 further includes a thermal shutdown circuit of a type well known in the prior art, which will shutdown the circuit to turn off transistors Q2 through Q4 in the event the circuit is subject to an excessive temperature, internally generated or otherwise [Column 2, Lines 59-64]."

It would have been obvious to modify the transom light of Isenga with the fault-cutoff and indicating status of Shackle to further incorporate the thermal shutdown circuit of Volk to ensure an additional safety measure for the light, as well as the passengers of the vessel.

44. Claim 58 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Shackle (U.S. Patent 6791275) as applied to Claim 51 above, and further in view of Davenport et al. (U.S. Patent 6545428).

Isenga in view of Shackle teach a thru-hull light as cited above.

Neither Isenga nor Shackle specifically teach an electrical circuit having a means for shutting off a source of power to the lamp upon the detection of a leakage of water into the lamp housing.

Davenport teaches, "FIG. 3 shows a schematic construction of a typical water-sensitive circuit 33. In that figure, block 42 represents a water sensor connected btween nodes 18 and 22 so as to be serially connected to ballast 20 (FIG. 1). It cooperates with a variable-conductance device 44 to substantially increase the

conductance of device 44 in the presence of leaking water. Water sensor 42 could be an electronic circuit (not shown) for sensing water or humidity. Variable-conductance device 44 could be a soft switch, i.e., a switch that does not necessarily turn fully off or fully on, such as a resistive or inductive switch, or it could be a hard switch [Column 4, Lines 9-19]."

It would have been obvious to modify the transom light of Isenga with the fault-cutoff and indicating status of Shackle to further incorporate the water-sensitive circuit of Davenport to ensure an additional safety measure for the light, as well as the passengers of the vessel.

45. Claim 60 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Shackle (U.S. Patent 6791275) as applied to Claim 51 above, and further in view of Rahm et al. (U.S. Patent 6636003).

Isenga in view of Shackle teach a thru-hull light as cited above.

Neither Isenga nor Shackle specifically teach the lamp having a color temperature of at least five thousand K.

Rahm teaches the use of a lamp having a color temperature of at least five thousand K [Column 2, Lines 20-23].

It is obvious that one could modify the transom light of Isenga with the fault-cutoff and indicating status of Shackle to further incorporate the five thousand K lamp of Rahm to ensure a desired quality of light. The examiner considers the limitation a matter of design preference, and it is commonly held in the art and obvious that the color

temperature of the lamp further provides a desired hue [e.g., 5000K for a illumination in the blue spectrum].

46. Claim 61 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Rahm et al. (U.S. Patent 6636003).

Isenga teaches a transom light having a housing with hollow interior [Figure 3: (27)]; a thru-hull fitting assembly [Figure 3: (81)] connected to a forward end of the lamp housing [Figure 3: (33)] for mounting the forward end of the lamp housing in a hole in the hull of a vessel in a water-tight fashion [see Abstract]; a lamp [Figure 3: (17)]; means for mounting the lamp in the interior of the lamp housing [Figure 3: (21, 23, 25)]; a window [Figure 3: (43)] extending across the forward end of the lamp housing; and a means for providing a water-tight seal between the window and the forward end of the lamp housing to prevent water from entering the interior of the lamp housing [Figure 3: (65)]. Isenga further teaches the transom light having an electrical circuit connected to the light [Figures 2-4: (19); Column 2, Lines 42-52].

Isenga does not specifically teach the lamp having a color temperature of at least five thousand K.

Rahm teaches the use of a lamp having a color temperature of at least five thousand K [Column 2, Lines 20-23].

It is obvious that one could modify the transom light of Isenga to incorporate the five thousand K lamp of Rahm to ensure a desired quality of light. The examiner considers the limitation a matter of design preference, and it is commonly held in the art

and obvious that the color temperature of the lamp further provides a desired hue [e.g., 5000K for a illumination in the blue spectrum].

47. Claims 62-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Rahm et al. (U.S. Patent 6636003) as applied to Claim 61 above, and further in view of Schuda et al. (U.S. Patent 4940922).

Isenga in view of Rahm teach a transom light as cited above.

Neither Isenga nor Rahm teach the light having a reflector mounted in the interior of the lamp housing and surrounding the lamp.

Schuda teaches an integral reflector flashlamp whereby a reflector [Figure 1: (11)] is disposed within a housing [Figure 1: (14)] and surrounds the light source [Figure 1: (45, 51)]. Schuda further teaches the reflector being designed in parabolic, elliptical or aspherical in shape to provide a particularly desired collimation of light [Column 2, Lines 53-55].

It would have been obvious to modify the transom light of Isenga with the five thousand K lamp of Rahm to further incorporate the integral reflector of Schuda in order to collimate and focus the beam of light.

48. Claim 65 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Rahm et al. (U.S. Patent 6636003) as applied to Claim 61 above, and further in view of Poggi (U.S. Patent 5800041).

Isenga in view of Rahm teach a thru-hull mounted light as cited above.

Neither Isenga nor Rahm specifically teach the light having an end cap and means for securing the end cap to a rearward end of the lamp housing in a water-tight fashion.

Poggi discloses an underwater light fitting wherein an end cap [Figure 2: (31)] is fitted over a rearward end of the lamp housing [Figures 2-3: (34)]. Poggi further teaches, "The cap 31 has an internally threaded portion 36 which engages an externally threaded portion 36 which engages an externally threaded portion 37 of the shaped portion 34 of the casing 12. The cap 31 thus screws onto the shaped portion 34, securing the flange 17 of the connection assembly 16 to the external end of the shaped portion 34 of the casing 12. An "O" ring 35 is provided between the flange 17 and the external end of the shaped portion 34, in order to prevent ingress of water. In use, therefore, the housing 1 is water-tight [Column 5, Lines 2-13]."

It would have been obvious to modify the transom light of Isenga with the five thousand K lamp of Rahm to further incorporate the end cap of Poggi to ensure an additional safety measure in the case where water somehow penetrates into the lamp.

49. Claim 66 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Rahm et al. (U.S. Patent 6636003) as applied to Claim 61 above, and further in view of Volk et al. (U.S. Patent 6538394).

Isenga in view of Rahm teach a thru-hull light as cited above.

Neither Isenga nor Rahm specifically teach an electrical circuit having a means for shutting off a source of power to the lamp upon the detection of a predetermined excessive heat condition.

Volk teaches, "The circuit of FIG. 1 further includes a thermal shutdown circuit of a type well known in the prior art, which will shutdown the circuit to turn off transistors Q2 through Q4 in the event the circuit is subject to an excessive temperature, internally generated or otherwise [Column 2, Lines 59-64]."

It would have been obvious to modify the transom light of Isenga with the five thousand K lamp of Rahm to further incorporate the thermal shutdown circuit of Volk to ensure an additional safety measure for the light, as well as the passengers of the vessel.

50. Claim 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Rahm et al. (U.S. Patent 6636003) as applied to Claim 61 above, and further in view of Davenport et al. (U.S. Patent 6545428).

Isenga in view of Rahm teach a thru-hull light as cited above.

Neither Isenga nor Rahm specifically teach an electrical circuit having a means for shutting off a source of power to the lamp upon the detection of a leakage of water into the lamp housing.

Davenport teaches, "FIG. 3 shows a schematic construction of a typical water-sensitive circuit 33. In that figure, block 42 represents a water sensor connected btween nodes 18 and 22 so as to be serially connected to ballast 20 (FIG. 1). It cooperates with a variable-conductance device 44 to substantially increase the conductance of device 44 in the presence of leaking water. Water sensor 42 could be an electronic circuit (not shown) for sensing water or humidity. Variable-conductance device 44 could be a soft switch, i.e., a switch that does not necessarily turn fully off or

fully on, such as a resistive or inductive switch, or it could be a hard switch [Column 4, Lines 9-19]."

It would have been obvious to modify the transom light of Isenga with the five thousand K lamp of Rahm to further incorporate the water-sensitive circuit of Davenport to ensure an additional safety measure for the light, as well as the passengers of the vessel.

51. Claims 68-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Rahm et al. (U.S. Patent 6636003) as applied to Claim 61 above, and further in view of Shackle (U.S. Patent 6791275).

Isenga in view of Rahm teach a thru-hull light as cited above.

Neither Isenga nor Rahm specifically teach an electrical circuit connected to the lamp and including a ballast and means for shutting off a source of power to the ballast in the event of a fault in the lamp.

Shackle teaches a lamp with an electrical circuit connected to a lamp and ballast, and means for shutting off a source of power to the ballast in the event of a fault in the lamp. Shackle further teaches the electrical circuit providing a power indicator status [Abstract], as well as a means for indicating a fault status [Column 3, Lines 22-26].

It would have been obvious to modify the transom light of Isenga with the five thousand K lamp of Rahm to further incorporate the fault-status circuit of Shackle to ensure an additional safety measure for the light, as well as the passengers of the vessel. In addition, an indicator for power and/or fault provides a user an operating status for the lamp and an immediate warning to a malfunction.

52. Claim 70 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Rahm et al. (U.S. Patent 6636003) as applied to Claim 61 above, and further in view of Schuda et al. (U.S. Patent 4940922).

Isenga in view of Rahm teach a transom light having a window as cited above.

Neither Isenga nor Rahm specifically teach the window being made of sapphire.

Schuda teaches a window being made of sapphire [Figure 1: (30); Column 2, Line 66; Claim 4].

It would have been obvious to modify the transom light of Isenga with the five thousand K lamp of Rahm to further incorporate the sapphire window of Schuda in order to provide a resilient and thermally conductive window in protecting the light. It is also obvious that sapphire windows are used in high intensity discharge lamp applications, whereby sapphire's high thermal conductivity provides efficient heat dissipation.

53. Claim 71 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932), and further in view of Schuda (U.S. Patent 4940922), Volk et al. (U.S. Patent 6538394), and Davenport et al. (U.S. Patent 6545428).

Isenga teaches a transom light having a housing with hollow interior [Figure 3: (27)]; a thru-hull fitting assembly [Figure 3: (81)] connected to a forward end of the lamp housing [Figure 3: (33)] for mounting the forward end of the lamp housing in a hole in the hull of a vessel in a water-tight fashion [see Abstract]; a lamp [Figure 3: (17)]; means for mounting the lamp in the interior of the lamp housing [Figure 3: (21, 23, 25)]; a window [Figure 3: (43)] extending across the forward end of the lamp housing; and a means for providing a water-tight seal between the window and the forward end of the

lamp housing to prevent water from entering the interior of the lamp housing [Figure 3: (65)]. Isenga further teaches the transom light having an electrical circuit connected to the light [Figures 2-4: (19); Column 2, Lines 42-52].

Isenga does not specifically teach the window being made of sapphire. Isenga further does not specifically teach an electrical circuit having a means for shutting off a source of power to the lamp upon the detection of a predetermined excessive heat condition or upon the detection of a leakage of water into the lamp housing.

Schuda teaches a window being made of sapphire [Figure 1: (30); Column 2, Line 66; Claim 4].

Volk teaches, "The circuit of FIG. 1 further includes a thermal shutdown circuit of a type well known in the prior art, which will shutdown the circuit to turn off transistors Q2 through Q4 in the event the circuit is subject to an excessive temperature, internally generated or otherwise [Column 2, Lines 59-64]."

Davenport teaches, "FIG. 3 shows a schematic construction of a typical water-sensitive circuit 33. In that figure, block 42 represents a water sensor connected btween nodes 18 and 22 so as to be serially connected to ballast 20 (FIG. 1). It cooperates with a variable-conductance device 44 to substantially increase the conductance of device 44 in the presence of leaking water. Water sensor 42 could be an electronic circuit (not shown) for sensing water or humidity. Variable-conductance device 44 could be a soft switch, i.e., a switch that does not necessarily turn fully off or fully on, such as a resistive or inductive switch, or it could be a hard switch [Column 4, Lines 9-19]."

It would have been obvious to modify the transom light of Isenga to incorporate the sapphire window of Schuda, the thermal shutdown circuit of Volk, and the water-sensitive circuit of Davenport to ensure safety of the light, as well as the passengers of the vessel. It is also obvious that sapphire windows are used in high intensity discharge lamp applications, whereby sapphire's high thermal conductivity provides efficient heat dissipation.

54. Claim 72 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Dunn et al. (U.S. Patent 5825954).

Isenga teaches a transom light having a housing with hollow interior [Figure 3: (27)]; a lamp [Figure 3: (17)]; means for mounting the lamp in the interior of a front end portion of the lamp housing [Figure 3: (21, 23, 25)]; a thru-hull fitting assembly [Figure 3: (81)] connected to a front portion of the lamp housing [Figure 3: (33)] for mounting the front end of the lamp housing in a hole in the hull of a vessel in a water-tight fashion [see Abstract]; a window [Figure 3: (43)] extending across the forward end of the lamp housing.

Isenga does not teach the lamp having a light pipe disposed between the lamp and the front end portion of the housing, so that light from the lamp may pass there through and where two partitions are created by virtue of the light pipe's disposition.

Dunn discloses a submersible fiber optics lens assembly having a light pipe [Figure 1: (103)] with an end [Figure 1: (102)] received by a front portion [Figure 1: (101)], whereby light from a lamp passes there through.

It is obvious that one could modify the transom light of Isenga to incorporate light pipe of Dunn to ensure safety of the light, as well as the passengers of the vessel. To quote Dunn, "Pool lighting systems must be designed to provide a significant amount of light, and yet be safe from contamination and/or damage from the effects of exposure to water. Fiber optic light systems allow a light source to be located away from a pool's body of water, and thus provide for a safe distance between electrical components and the water [Column 1, Lines 8-14]."

55. Claim 73 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Dunn et al. (U.S. Patent 5825954) as applied to Claim 72 above, and further in view of Schuda et al. (U.S. Patent 4940922).

Isenga in view of Dunn teach a transom light as cited above.

Neither Isenga nor Dunn teach the light having a reflector mounted in the interior of the lamp housing and surrounding the lamp.

Schuda teaches an integral reflector flashlamp whereby a reflector [Figure 1: (11)] is disposed within a housing [Figure 1: (14)] and surrounds the light source [Figure 1: (45, 51)]. Schuda further teaches the reflector being designed in parabolic, elliptical or aspherical in shape to provide a particularly desired collimation of light [Column 2, Lines 53-55].

It would have been obvious to modify the transom light of Isenga with the light pipe of Dunn to further incorporate the integral reflector of Schuda in order to improve light efficiency, whereby the reflector ensures that most of the illumination is guided into the light pipe.

56. Claim 74 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Dunn et al. (U.S. Patent 5825954) as applied to Claim 72 above, and further in view of Tominga et al. (U.S. Patent 4957370).

Isenga in view of Dunn teach a transom light as cited above.

Neither Isenga nor Dunn teach the light having a hot mirror positioned over a rear end of the light pipe that faces the lamp.

Tominga teaches a hot mirror [Figure 3: (3); Column 4, Lines 22-37] disposed between a lamp and light guide/light pipe.

It would have been obvious to modify the transom light of Isenga with the light pipe of Dunn to further incorporate the hot mirror of Tominga in order to prevent heat from entering the light guide, which is commonly held [see Column 4, Lines 31-32 of Tominga].

57. Claim 75 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Dunn et al. (U.S. Patent 5825954) as applied to Claim 72 above, and further in view of Schuda (U.S. Patent 4940922).

Isenga in view of Dunn teach a transom light as cited above.

Neither Isenga nor Dunn specifically teach the window being made of a scratch resistant material.

Schuda teaches a window being made of sapphire [Figure 1: (30); Column 2, Line 66; Claim 4]. To the applicant's admission, sapphire "is extremely hard and therefore resists scratching, and also resists breakage due to thermal shock and wave slap [Page 3, Paragraph 12]."

It would have been obvious to modify the transom light of Isenga with the light pipe of Dunn to further incorporate the sapphire window of Schuda in order to provide a resilient and thermally conductive window in protecting the light. It is also obvious that sapphire windows are used in high intensity discharge lamp applications, whereby sapphire's high thermal conductivity provides efficient heat dissipation.

58. Claim 76 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922).

Isenga teaches a transom light having a housing with hollow interior [Figure 3: (27)]; a thru-hull fitting assembly [Figure 3: (81)] connected to a forward end of the lamp housing [Figure 3: (33)] for mounting the forward end of the lamp housing in a hole in the hull of a vessel in a water-tight fashion [see Abstract]; a lamp [Figure 3: (17)]; means for mounting the lamp in the interior of the lamp housing [Figure 3: (21, 23, 25)]; a window [Figure 3: (43)] extending across the forward end of the lamp housing; and a means for providing a water-tight seal between the window and the forward end of the lamp housing to prevent water from entering the interior of the lamp housing [Figure 3: (65)].

Isenga does not teach the light having a reflector mounted in the interior of the lamp housing and surrounding the lamp, and whereby the reflector has a hybrid inner parabolic section and an outer elliptical section.

Schuda teaches an integral reflector flashlamp whereby a reflector [Figure 1: (11)] is disposed within a housing [Figure 1: (14)] and surrounds the light source [Figure 1: (45, 51)]. Schuda further teaches the reflector being designed in parabolic, elliptical

or aspherical in shape to provide a particularly desired collimation of light [Column 2, Lines 53-55].

It would have been obvious to modify the transom light of Isenga to incorporate the integral reflector of Schuda in order to collimate and focus the beam of light. With respect to the hybrid inner parabolic and outer elliptical sections of the reflector, the examiner considers the limitation a matter of optics and design preference whereby design of the reflector is determined by desired optical effects. Such a limitation is commonly held in the art and the examiner considers the teaching of Schuda functionally equivalent.

59. Claim 77 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Richardson (U.S. Patent 6638088).

Isenga teaches a transom light having a housing with hollow interior [Figure 3: (27)]; a thru-hull fitting assembly [Figure 3: (81)] connected to a forward end of the lamp housing [Figure 3: (33)] for mounting the forward end of the lamp housing in a hole in the hull of a vessel in a water-tight fashion [see Abstract]; a lamp [Figure 3: (17)]; means for mounting the lamp in the interior of the lamp housing [Figure 3: (21, 23, 25)]; a window [Figure 3: (43)] extending across the forward end of the lamp housing; and a means for providing a water-tight seal between the window and the forward end of the lamp housing to prevent water from entering the interior of the lamp housing [Figure 3: (65)].

Isenga does not teach a thermal insulating sleeve surrounding the forward end of the lamp housing.

Richardson teaches a lamp having a socket with housing walls/sleeve [Figures 5&10: (58)] defining an enclosure with the socket base [Figure 5&10: (56)] and surrounds a portion of the lamp to provide thermal insulation [Column 13, Line 38 – Column 14, Line 2].

It would have been obvious to modify the transom light of Isenga to incorporate the thermal insulating sleeve of Richardson in order to reduce the possibility of injury or damage due to high open circuit voltage, environmental effects and the like [see Abstract of Richardson], which is commonly held in the art.

60. Claim 78 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Jaksic et al. (U.S. Patent 5748816).

Isenga teaches a transom light having a housing with hollow interior [Figure 3: (27)]; a lamp [Figure 3: (17)]; means for mounting the lamp in the interior of a front end portion of the lamp housing [Figure 3: (21, 23, 25)]; a window [Figure 3: (43)] extending across the forward end of the lamp housing; and a thru-hull fitting assembly [Figure 3: (81)] connected to a front portion of the lamp housing [Figure 3: (33)] for mounting the front end of the lamp housing in a hole in the hull of a vessel in a water-tight fashion [see Abstract].

Isenga does not teach the light having a hollow reflective tube disposed between the lamp and the front end portion of the housing, so that light from the lamp may pass there through and where two partitions are created by virtue of the reflective tube's disposition.

Jaksic teaches a tube [Figures 1-4: (1)] having reflective walls [Figures 1-4: (4)] whereby light may enter the tube and be reflected by the walls to an exit aperture.

It is obvious that one could modify the transom light of Isenga to incorporate the hollow reflective tube of Jaksic in order to collimate and focus the beam of light. The examiner further considers the limitation a matter of optics and design preference whereby designs of optical components are determined by desired optical effects.

61. Claim 79 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Jaksic et al. (U.S. Patent 5748816) as applied to Claim 78 above, and further in view of Schuda et al. (U.S. Patent 4940922).

Isenga in view of Jaksic teach a transom light as cited above.

Neither Isenga nor Jaksic teach the light having a reflector mounted in the interior of the lamp housing and surrounding the lamp.

Schuda teaches an integral reflector flashlamp whereby a reflector [Figure 1: (11)] is disposed within a housing [Figure 1: (14)] and surrounds the light source [Figure 1: (45, 51)]. Schuda further teaches the reflector being designed in parabolic, elliptical or aspherical in shape to provide a particularly desired collimation of light [Column 2, Lines 53-55].

It would have been obvious to modify the transom light of Isenga with the reflective tube of Jaksic to further incorporate the integral reflector of Schuda in order to improve light efficiency, whereby the reflector ensures that most of the illumination is guided into the reflective tube.

62. Claim 80 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Jaksic et al. (U.S. Patent 5748816) as applied to Claim 78 above, and further in view of Tiesler-Wittig (U.S. Publication 2002/0085384).

Isenga in view of Jaksic teach a transom light as cited above.

Neither Isenga nor Jaksic teach the lamp being a hybrid Xenon/HID lamp.

It should be noted, to the applicant's admission, that such lamps have been introduced in the automobile industry and referred to as D2 lamps [Page 12, Paragraph 45]. It would have been obvious that one could modify the transom light of Isenga with the reflective tube of Jaksic to further incorporate the D2 lamp as cited above, to ensure a light with useful life and power dissipation. Such a configuration is considered a matter of design preference by the examiner.

Tiesler-Wittig teaches a high intensity discharge lamp utilizing a xenon gas, which is commonly held in the art [Page 1, Paragraph 8].

It would have been obvious to modify the transom light of Isenga with the reflective tube of Jaksic to further incorporate the high intensity discharge lamp of Tiesler-Wittig because of the low operating voltage.

63. Claims 81, 82, and 84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922).

With regards to Claim 81, Isenga teaches a transom light having a housing with hollow interior [Figure 3: (27)] and a forward end configured for mating with a hole in the hull of a vessel [Figures 1-3; see also Abstract]; a lamp [Figure 3: (17)]; means for

mounting the lamp including a socket [Figures 2-4: (15); Column 2, Lines 42-45]; and a window [Figure 3: (43)] extending across the forward end of the lamp housing.

Isenga does not specifically teach the window being made of a scratch resistant material.

Schuda teaches a window being made of sapphire [Figure 1: (30); Column 2, Line 66; Claim 4]. To the applicant's admission, sapphire "is extremely hard and therefore resists scratching, and also resists breakage due to thermal shock and wave slap [Page 3, Paragraph 12]."

It would have been obvious to modify the transom light of Isenga to incorporate the sapphire window of Schuda in order to provide a resilient and thermally conductive window in protecting the light. It is also obvious that sapphire windows are used in high intensity discharge lamp applications, whereby sapphire's high thermal conductivity provides efficient heat dissipation.

64. With regards to Claim 82, Isenga teaches a means for providing a water-tight seal between the window and the forward end of the lamp housing to prevent water from entering the interior of the lamp housing [Figure 3: (65)].

65. With regards to Claim 84, Isenga teaches a thru-hull fitting assembly [Figure 3: (81)] connected to a forward end of the lamp housing [Figure 3: (33)] for mounting the forward end of the lamp housing in a hole in the hull of a vessel in a water-tight fashion [see Abstract].

66. Claim 83 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922) as applied to Claim 81 above.

Isenga teaches a transom light as cited above.

Isenga does not teach the light having a reflector mounted in the interior of the lamp housing and surrounding the lamp.

Schuda teaches an integral reflector flashlamp whereby a reflector [Figure 1: (11)] is disposed within a housing [Figure 1: (14)] and surrounds the light source [Figure 1: (45, 51)]. Schuda further teaches the reflector being designed in parabolic, elliptical or aspherical in shape to provide a particularly desired collimation of light [Column 2, Lines 53-55].

It would have been obvious to modify the transom light of Isenga to incorporate the integral reflector of Schuda in order to collimate and focus the beam of light.

67. Claim 85 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922) as applied to Claim 81 above, and further in view of Poggi (U.S. Patent 5800041).

Isenga in view of Schuda teach a thru-hull mounted light as cited above.

Neither Isenga nor Schuda specifically teach the light having an end cap and means for securing the end cap to a rearward end of the lamp housing in a water-tight fashion.

Poggi discloses an underwater light fitting wherein an end cap [Figure 2: (31)] is fitted over a rearward end of the lamp housing [Figures 2-3: (34)]. Poggi further

teaches, "The cap 31 has an internally threaded portion 36 which engages an externally threaded portion 36 which engages an externally threaded portion 37 of the shaped portion 34 of the casing 12. The cap 31 thus screws onto the shaped portion 34, securing the flange 17 of the connection assembly 16 to the external end of the shaped portion 34 of the casing 12. An "O" ring 35 is provided between the flange 17 and the external end of the shaped portion 34, in order to prevent ingress of water. In use, therefore, the housing 1 is water-tight [Column 5, Lines 2-13]."

It would have been obvious to modify the transom light of Isenga with the sapphire window of Schuda to further incorporate the end cap of Poggi to ensure an additional safety measure in the case where water somehow penetrates into the lamp.

68. Claim 86 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922) as applied to Claim 81 above, and further in view of Volk et al. (U.S. Patent 6538394).

Isenga in view of Schuda teach a thru-hull light as cited above. Isenga further teaches the transom light having an electrical circuit connected to the light [Figures 2-4: (19); Column 2, Lines 42-52].

Neither Isenga nor Schuda specifically teach an electrical circuit having a means for shutting off a source of power to the lamp upon the detection of a predetermined excessive heat condition.

Volk teaches, "The circuit of FIG. 1 further includes a thermal shutdown circuit of a type well known in the prior art, which will shutdown the circuit to turn off transistors

Q2 through Q4 in the event the circuit is subject to an excessive temperature, internally generated or otherwise [Column 2, Lines 59-64]."

It would have been obvious to modify the transom light of Isenga with the sapphire window of Schuda to further incorporate the thermal shutdown circuit of Volk to ensure an additional safety measure for the light, as well as the passengers of the vessel.

69. Claim 87 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922) as applied to Claim 81 above, and further in view of Davenport et al. (U.S. Patent 6545428).

Isenga in view of Schuda teach a thru-hull light as cited above. Isenga further teaches the transom light having an electrical circuit connected to the light [Figures 2-4: (19); Column 2, Lines 42-52].

Neither Isenga nor Schuda specifically teach an electrical circuit having a means for shutting off a source of power to the lamp upon the detection of a leakage of water into the lamp housing.

Davenport teaches, "FIG. 3 shows a schematic construction of a typical water-sensitive circuit 33. In that figure, block 42 represents a water sensor connected btween nodes 18 and 22 so as to be serially connected to ballast 20 (FIG. 1). It cooperates with a variable-conductance device 44 to substantially increase the conductance of device 44 in the presence of leaking water. Water sensor 42 could be an electronic circuit (not shown) for sensing water or humidity. Variable-conductance device 44 could be a soft switch, i.e., a switch that does not necessarily turn fully off or

fully on, such as a resistive or inductive switch, or it could be a hard switch [Column 4, Lines 9-19]."

It would have been obvious to modify the transom light of Isenga with the sapphire window of Schuda to further incorporate the water-sensitive circuit of Davenport to ensure an additional safety measure for the light, as well as the passengers of the vessel.

70. Claims 88-89 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922) as applied to Claim 81 above, and further in view of Shackle (U.S. Patent 6791275).

Isenga in view of Schuda teach a thru-hull light as cited above. Isenga further teaches the transom light having an electrical circuit connected to the light [Figures 2-4: (19); Column 2, Lines 42-52].

Neither Isenga nor Schuda specifically teach an electrical circuit connected to the lamp and including a ballast and means for shutting off a source of power to the ballast in the event of a fault in the lamp.

Shackle teaches a lamp with an electrical circuit connected to a lamp and ballast, and means for shutting off a source of power to the ballast in the event of a fault in the lamp. Shackle further teaches the electrical circuit providing a power indicator status [Abstract], as well as a means for indicating a fault status [Column 3, Lines 22-26].

It would have been obvious to modify the transom light of Isenga with the sapphire window of Schuda to further incorporate the fault-status circuit of Shackle to ensure an additional safety measure for the light, as well as the passengers of the

vessel. In addition, an indicator for power and/or fault provides a user an operating status for the lamp and an immediate warning to a malfunction.

71. Claim 90 is rejected under 35 U.S.C. 103(a) as being unpatentable over Isenga (U.S. Patent 4954932) in view of Schuda (U.S. Patent 4940922) as applied to Claim 81 above, and further in view of Rahm et al. (U.S. Patent 6636003).

Isenga in view of Schuda teach a thru-hull light as cited above.

Neither Isenga nor Schuda specifically teach the lamp having a color temperature of at least five thousand K.

Rahm teaches the use of a lamp having a color temperature of at least five thousand K [Column 2, Lines 20-23].

It is obvious that one could modify the transom light of Isenga with the sapphire window of Schuda to further incorporate the five thousand K lamp of Rahm to ensure a desired quality of light. The examiner considers the limitation a matter of design preference, and it is commonly held in the art and obvious that the color temperature of the lamp further provides a desired hue [e.g., 5000K for a illumination in the blue spectrum].

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following references have been cited to further show the state of the art pertinent to the current application:

U.S. Patent 2593171 to Morse;

U.S. Patent 4104620 to Cronin;

U.S. Patent 4145075 to Holzmann;

U.S. Patent 4219871 to Larrimore;

U.S. Patent 4224464 to Bunnell et al.;

U.S. Patent 4245281 to Ziaylek, Jr.;

U.S. Patent 4344118 to Rundquist et al.;

U.S. Patent 4346404 to Gantenbrink;

U.S. Patent 4360859 to Ziaylek, Jr.;

U.S. Patent 4361864 to Spiro;

U.S. Patent 4368508 to Gantenbrink;

U.S. Patent 4445163 to Ziaylek, Jr.;

U.S. Patent 4544996 to George;

U.S. Patent 4599540 to Roberts;

U.S. Patent 4782430 to Robbins et al.;

U.S. Patent 4965601 to Canty;

U.S. Patent 4977418 to Canty;

U.S. Patent 5016151 to Mula;

U.S. Patent 5045978 to Gargle;

U.S. Patent 5045983 to Shields;

U.S. Patent 5081361 to Rieger;

U.S. Patent 5103381 to Uke;

U.S. Patent 5323090 to Lestician;

U.S. Patent 5418420 to Roberts;

U.S. Patent 5456499 to Sharpe;

U.S. Patent 5504666 to Carmichael;

U.S. Patent 5672004 to Schmid, Jr.;

U.S. Patent 5721465 to Roberts;

U.S. Patent 5803579 to Turnbull et al.;

U.S. Patent 5967567 to Nordstrom;

U.S. Patent 6091489 to Welker;

U.S. Patent 6100921 to Rowley;

U.S. Patent 6155703 to Rizkin et al.;

U.S. Patent 6329663 to Terada;

U.S. Patent 6350043 to Gloisten;

U.S. Patent 6351058 to Roberts;

U.S. Patent 6414436 to Eastlund et al.;

U.S. Patent 6604481 to Johnston;

U.S. Patent 6616291 to Love;

U.S. Publication 2002/0085384 to Tiesler-Wittig.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M Han whose telephone number is (571) 272-2207. The examiner can normally be reached on 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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JMH